

RAMPED UP

RAMP NEWSLETTER – FALL 2020, ISSUE 11

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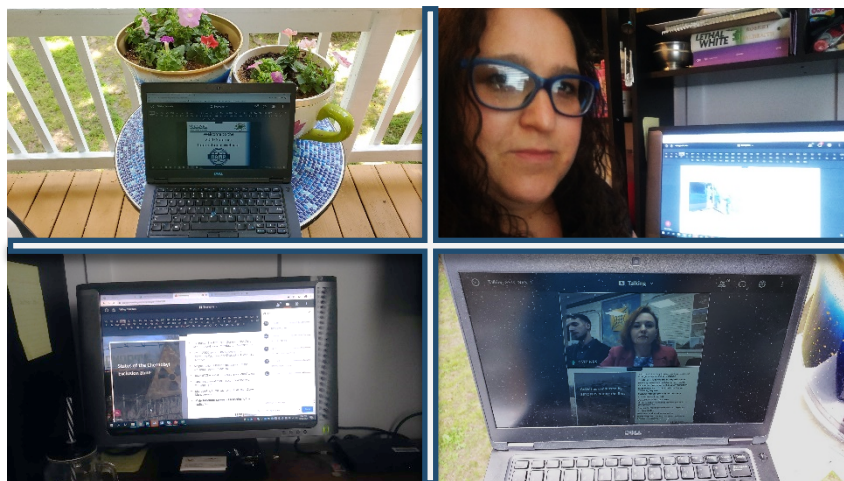
U.S. Nuclear Regulatory Commission

Rockville, MD

U.S. NRC RAMP website:

<https://ramp.nrc-gateway.gov/>

2020 Summer RAMP Webinar



The first RAMP International Webinar was held on June 25, 2020, at both 7:00 a.m. and 1:00 p.m. EDT to accommodate RAMP members from many time zones around the world. Both hour-long sessions were packed with information including updates on RAMP computer codes and a technical symposium on wildfires in the Chernobyl Exclusion Zone (CEZ).

The webinar was a resounding success with over 160 members from 16 countries attending both sessions. The webinar opened with an update on the efforts being done to improve several of the RAMP computer codes. This included announcing new features being added to RASCAL 5, SNAP/RADTRAD, NRCDOSE3, NRCRADTRAN, and VARSKIN+. The technical portion of the webinar was focused on the response of the Ukrainian Regulator, State Scientific and Technical Center for Nuclear and Radiation Safety (SSTC NRS), to the wildfires in the CEZ. SSTC NRS presented their sampling methods and modeling calculations with regards to the releases of radioactive materials to nearby inhabited areas affected by the wildfires. In addition, Pacific Northwest National Laboratory (PNNL) provided a short technical presentation on the use of the GENII computer code to model the forest fires involving radioactive materials.

Webinar attendees were given the opportunity to ask questions about either the RAMP computer code updates or the wildfires in the CEZ at the conclusion of the webinar. The success of this webinar opens the possibility of future webinars, even after the lifting of the COVID-19 pandemic travel restrictions.

TEAM HIGHLIGHTS

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Senior Project Manager

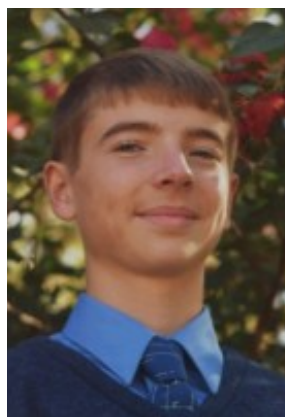


Bruce McDowell is a Senior Project Manager at Pacific Northwest National Laboratory (PNNL). He has been managing environmental review and regulatory projects for federal agencies, including the US Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE), for the last 30 years.

Mr. McDowell is the PNNL lead assisting the NRC in developing their regulatory infrastructure for licensing new Small Modular Reactor (SMR) designs such as those made by NuScale. He has served as Project Team Lead for the environmental review of an SMR design by the Tennessee Valley Authority and lead a feasibility study for siting SMRs in Puerto Rico.

Recently, Mr. McDowell has aided the NRC with managing RAMP code updates. He also organized the Summer 2020 International RAMP Webinar and the Fall 2020 RAMP User Group Meeting. He continues to work on coordinating the improvement of the user experience and efficiency of RAMP codes.

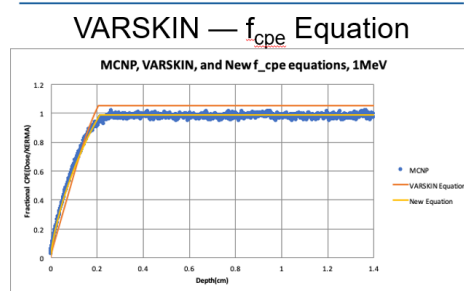
Summer Intern



Lincoln Johnston is going into his final year as an undergraduate student at the University of Michigan-Ann Arbor. He is majoring in Nuclear Engineering and minoring in Physics and Computer Science.

Lincoln has been working with the RAMP Team in the summer of 2020 as part of his internship with the NRC. He has worked on improving VARSKIN's gamma dose approximation equations, done error/bug testing for various RAMP codes, and is the guest editor for this newsletter.

After graduating in the Spring of 2021, Lincoln is planning on going to graduate school for Nuclear Engineering.



L. Johnston's summer internship work.

CODE UPDATES

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International Partners

INTERNATIONAL PARTNERS UPDATE

RAMP has over 1900 members of which 500 are international radiation protection code users.

The RAMP team thanks Spain, Canada, and United Arab Emirates for renewing their agreement!

Both have signed full 5 year RAMP renewal agreements.

The RAMP Team is tentatively working towards a Spring 2020 meeting, which will be hosted by Ukraine.



Coming Soon! The Wound Model in VARSKIN+

The “Wound Model” is COMING SOON in the next version of VARSKIN! It will find the shallow dose, deep dose, local tissue dose, and organ dose from a wound containing a radioactive contaminant.

The wound model finds dose for events where radioactive material is deposited on an injury at or below the surface of the skin. This could be the result of a burn, abrasion, laceration, or penetration.

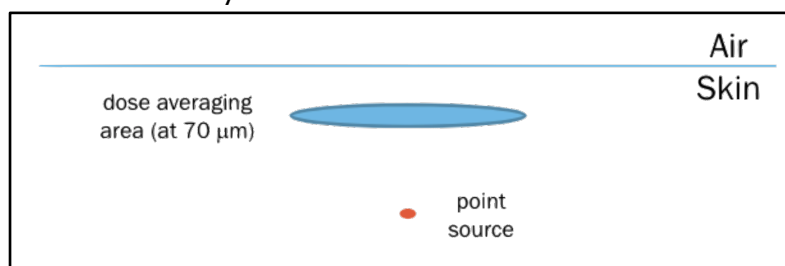
The shallow dose at 70 microns for a source on the surface of a wound is found in the same way as VARSKIN previously calculated skin surface dose. If the source is embedded in the skin, the only change is that the factor accounting for backscatter is removed.

The local dose captures the dose delivered over the volume of skin that is being irradiated by the source. The size of this region depends on the range of the particles being emitted from the source.

The dose to organs is estimated based on the predicted percent absorption of a contaminant and the rate at which it is transferred between different organs and parts of the body.

The user will be able to enter the type and depth of the wound, the geometry of the radiation source, along with the nuclides present in the source and their activities.

VARSKIN+ is scheduled to be released by the end of 2020.



An point source embedded in skin, below the shallow dose depth

FUTURE EVENTS

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WE'D LOVE TO HEAR FROM YOU!

The RAMP Team welcomes your thoughts and feedback on any code features and enhancements for the RAMP codes and the RAMP website. Please send your feedback to RAMP@nrc.gov.



Feedback

IN THE NEXT ISSUE OF RAMPED UP...

- 2020 Fall Webinar Highlight
- Who's new in RAMP?
- Code Updates and Highlights
- Detail on Future Webinars and Meetings
- ...and More!!

RAMP

Radiation Protection Computer Code
Analysis and Maintenance Program

FALL 2020 USERS GROUP

Virtual Meeting

REGISTRATION FOR RAMP MEMBERS
IS NOW OPEN AT:



RAMP
OCTOBER 26-30, 2020

8:00 a.m. - 4:00 p.m. EST daily
Email with link will be sent to after online registration is complete

AGENDA IN BRIEF

MONDAY

- Opening & Feature Presentations
- "What does emergency response look like during a pandemic?"
- "Inspections during a pandemic"
- RASCAL for novice users
- GENII

TUESDAY

VARSKIN; RASCAL for Intermediate users; Demo of RASCAL 5.0

WEDNESDAY

Internal Dosimetry Symposium; RESRAD*

THURSDAY

NRC Dose; NRC RADTRAN*

FRIDAY

Code Consolidation; Country to Country Discussions



NOVEMBER 4-6, 2020

9:00 a.m. - 12:00 p.m. and 1:00 - 4:00 p.m. daily EST
Email with link will be sent to after online registration is complete

AGENDA IN BRIEF

WEDNESDAY

RADTRAD novice

THURSDAY

RADTRAD Intermediate

FRIDAY

RADTRAD non-LWR; advanced designs

Turbo FRMAC*

**These classes are tentative.*

